

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

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Memorandum on the Black Hills Beetle and

Engelmann Spruce Beetle Infestations,

Dixie National Forest

On August 19 Mr. Clark Miles of the Forest Service Regional Office and I made a roadside examination of the bark beetle situation on part of the Dixie National Forest. The route followed was from Panguitch to Panguitch Lake, south and east as far as Harris Flat Guard Station, west to Cedar Breaks National Monument, north through the Monument, and northeast to Panguitch. We met Ranger Bentley at the Duck Creek Ranger Station and he accompanied us to the Engelmann spruce beetle infestation. Time did not permit a thorough observational survey - the purpose being to get a general impression of the situation.

Black Hills Beetle

As indicated by the number of "red tops" (1943 attacked trees) the Black Hills beetle infestation appears to be on the increase in the area south of Panguitch Lake on the Panguitch Lake Ranger District. Control was discontinued last spring because few trees were being found and the cost per tree was running very high. The number of "red tops" seen in the area indicated that control was warranted and that control costs should not have been as high as they were running.

Very few "red tops" were visible on the part of the Duck Creek Ranger District that was seen. This is undoubtedly due to the aggressive control work that has been carried out under Ranger Bentley during the preceding several years. Also, the timber cutting in several areas on this District where the pine is overmature probably has tended to reduce the losses caused by the Black Hills beetle.

To hold the infestation at a favorable level on the Dixie Forest, control work is advisable this winter or next spring in the heaviest centers. Unless such a policy is followed it is feared that the infestation

may develop into a sizeable outbreak within a few years that will cost more to control and also result in greater timber losses.

Engelmann Spruce Beetle

Ranger Bentley called our attention to an Engelmann spruce beetle infestation, about which he was much concerned, in the high country east of Cedar Breaks National Monument. Several large groups were noted and it appeared that the infestation had gotten a good start. Ranger Bentley is well acquainted with the work of this beetle as he was present on the Powell Forest when it swept through the spruce on the Aquarius Plateau and Boulder Mountain approximately 20 years ago. He stated that the infestation on the Dixie Forest now appears like that of the initial stages on the Powell Forest.

While the infestation appeared to be quite serious, it did not appear to be as aggressive as the Colorado outbreaks now in progress. Old killed trees on the Dixie indicated that the infestation has been endemic for a number of years, suddenly building up during the past 2 or 3 years.

There was one timber operator working in the spruce type. Ranger Bentley had marked a number of infested trees for removal.

It was suggested that an intensive fall survey be made of the spruce type to determine the extent and severeness of the infestation and that timber sales be stepped up in the accessible areas. Unfortunately, a considerable portion of the spruce is not accessible by road at the present time. If the infestation proves to be concentrated in accessible areas which can be logged within the next year, it may be possible to control the outbreak. Coupled with the sanitation logging in the accessible areas, it may be possible to carry out direct control work in the inaccessible areas. This all depends upon the extent to which the infestation has progressed.

If it is not possible to log all of the infested trees before the flight of beetles next year, it is believed that an active logging operation within the infestation may have a very beneficial effect. The degree of effectiveness will depend upon the habits and preference of the beetle, about which we know relatively little. Since this beetle readily attacks windthrown trees, it may also go into green logs in preference to standing trees. By having a large number of green logs in the woods at the time of flight of the beetles it is possible that a large percentage of the beetles would be absorbed in the logs. In Colorado the attack period is

from approximately June 15 to August 15. New attacks probably start as soon as the snow goes off in the spring. Beetles that emerged after August 15, instead of attacking green trees, congregated beneath the bark on the bases of the trees and the root crown. Beetles have been found under the bark of the root crown as much as a foot below the surface of the litter. Usually they are near the surface. The beetles that enter this hibernating stage presumably have a 2-year life cycle. At least a certain percent of the insects on the Dixie probably go through this hibernation stage. This should be checked rather closely as it will have an important bearing on control. Hibernating beetles have been found both in the 1943 attacked trees (trees that now have no needles on them) and in the 1944 attacked trees (trees with green foliage and containing immature stages in the main stem). Their presence beneath the bark is usually indicated by reddish brown boring dust at the base of the trees.

Tests carried out in Colorado with a mixture of orthodichlorobenzene and diesel oil against callow adults and immature stages indicate that it is effective in both 1 to 6 and 1 to 10 proportions. Tests against the hibernating adults have not been in progress long enough to make positive conclusions, but it is believed that the penetrating oil will be effective. Where the beetles are beneath the bark that is several inches below the surface of the litter it may be necessary to rake the litter away from the base of the trees. If the litter is not raked from the base of the trees, a sufficient amount of the material should be applied to permit it to run over the bark that is covered with the litter. The ortho-diesel oil should be used on the stumps of infested trees that are felled for logs and those that are treated by other means on both the 1943 and 1944 attacked trees.

Submitted by,

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